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ABSTRACT

This document is a final report on a multidisciplinary graduate program for the preparation of educational research specialists. The document is organized around a series of questions to which a personalized reply is given. The paramount objective of the program is stated as follows: the improvement of the quality of elementary and secondary education through increasing the availability and capability of four kinds of Ph.D.-level research specialists. The focal point of the plan of course work and educational research for each trainee was one of the following areas: (a) research in science and mathematics education, (b) research in foreign language education, (c) research in developmental-social psychology in education, (d) research methodology and educational technology. The questions solicit answers concerning the following topics: content focus of the program, staff, trainee selection criteria, federal support, and program strengths and weaknesses. Included as appendixes are course requirements and descriptions of the four areas of trainee preparation and individual evaluations for four trainees. (JA)

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A MULTIDISCIPLINARY GRADUATE PROGRAM FOR PREPARATION OF EDUCATIONAL RESEARCH SPECIALISTS

The University of Texas at Austin
and
The U. S. Office of Education

FINAL REPORT
PERSONAL ASSESSMENT AND TRAINING DATA

Program Period: Sept. 1, 1966 to Aug. 31, 1973

OEG-0-72-4875

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NATIONAL INSTITUTE OF EDUCATION
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1. *Give your appraisal of each of the following aspects of your Educational Research Training Program and note what you would change if you were to direct another program similar to it:*

a. Objectives

The paramount objective was to improve the quality of elementary and secondary education through increasing the availability and capability of four kinds of PhD-level research specialists. The focal point of the plan of course work and educational research for each trainee was one of the following areas: 1. Research in Science and Mathematics Education 2. Research in Foreign Language Education 3. Research in Developmental-Social Psychology in Education or 4. Research Methodology and Educational Technology. The objectives were well conceived and I think successfully attained with the vast majority of trainees. The three areas of concentration which were already well established when the program began were particularly successful and found their graduates much in demand in spite of the dwindling number of research openings due to loss of federal support for education. The Foreign Language Education area was perhaps less so although they turned out some excellent graduates. The latter was a new area of concentration in the process of development, and some growing pains were experienced as the faculty was rapidly expanding with the new ones lacking sufficient familiarity with the original objectives of the program.

Were a new program to become available, I would definitely stick with the objectives as spelled out in detail in the original proposal and as modified in the subsequent progress reports.

b. Content-Focus, topics, Laboratory, work-study, internships, field-trips, length of program

Content-Focus appeared adequate to the program as it developed. Sufficient variability prevented fossilization. Topics for investigation were focused upon trainee interests and the general needs of the community and the nation as a whole. In general the work-study concept was good, helping to strengthen the program. There was some difficulty in arranging enough suitable situations locally for the Foreign Language Education Trainees, but it was no real probelm in the other areas. Probably, if the program were to continue, we would utilize field trips to a greater extent than we did. Internship patterns differed from area to area, some being less structured than others. Overall, they provided very valuable experiences for the trainees. Were the program to reopen we might well arrange for more internship experiences with agencies outside the immediate vicinity of Austin. The length of the program appeared suitable. Some trainees were unable to complete it in the three calendar years provided, but a substantial number were able to do so.

c. Staff-Ratio, assignments, full-time or part-time, consultants

Staff-Ratio was generally adequate although the multidisciplinary nature of the program occasionally made the assignment of specific responsibility to individual faculty members difficult due to competing departmental and disciplinary constraints. The advantages of the multidisciplinary approach far outweighed the disadvantages, and it would certainly be retained if the program were reactivated. A number of prominant visiting scholars and lecturers were brought in to enrich the program, but entirely at local expense. It would be hoped that future funding would provide for expanding that aspect of the program.

d. Trainees-Selection criteria, class size, geographical distribution factors, ethnic minority participation

The selection of trainees in the four areas of concentration was done by faculty committees composed of members especially competent in the area in which prospective students wished to specialize. Committee recommendations were reviewed by the Program Director who attempted to distribute appointments more or less equally over the four areas of concentration. However, if one area had more clearly superior candidates than another at a given appointment time, appropriate adjustments in distribution of appointees could be made. Fortunately, this latter provision in our selection procedure posed no problem, because each area had more qualified applicants for traineeships than could possibly be accepted under the curtailed USOE program which restricted us to a total of 20 trainees.

The one criterion for selection that transcended all others was a manifest interest in and aptitude for educational research in the area of concentration designated by the applicant. Unless the appropriate selection committee was convinced by the applicant's statements and those of the references he furnished that he was dedicated to pursuing a career in educational research and had the potential for attaining the necessary doctoral preparation for it, the applicant was not accepted, regardless of other qualifications. A second basic criterion was unconditional admission to the Graduate School of The University of Texas at Austin.

Other criteria used included Graduate Record Aptitude Examination Scores and previous grade point average. In general, we favored prospective trainees with GRE scores in excess of 1200 and GPA records of approximately 3.5 on a 4-point scale. These were not hard and fast cutoff points, however.

Consideration was given to quality and grading practices of previous academic institutions applicants had attended, the probable lack of validity of GRE scores with respect to individuals for whom English was a second language or who came from culturally different backgrounds, the recommendations of past instructors, etc.

In the past some selection committees gave preference, other things being equal, to candidates with past teaching experience. One result of our experience in the program was to downgrade the importance of this criterion. Often it seemed that those who had spent the most time teaching in elementary and secondary schools were least likely to become successful educational research specialists. One can only speculate as to the reason for this, but a possible hypothesis is that the two kinds of pursuits entail quite different motivations and aptitudes. Whatever the reason for this discrepancy, our selection procedure in any future program would place less emphasis upon prior teaching experience.

We made an active effort to attract students from a wide geographical area and to include as many women and ethnic minorities as possible. No difficulty was experienced in achieving an optimal geographic mix nor in recruiting a large number of female trainees. Although we managed to recruit a few trainees who were black, Arabic, or had Spanish surnames, we were less successful than we had hoped in this latter effort. We believe that, if future funding were to provide for necessary travel to contact and interview prospective students from ethnic minority groups and economically deprived whites, we could recruit many more such people than was possible in the past. It should be said that many trainees, though not themselves classifiable as culturally or economically deprived, devoted their research efforts toward improving the educational opportunities of such individuals and it is believed

they will continue to do so in their postgraduate careers. They should be able to effect a significant and continuing impact in this important educational endeavor.

As to the matter of class size, no changes are recommended. We believe that class size was maintained at an optimal level and that such a level could be maintained in the future even if the number of trainees were to be increased substantially in a reactivated program.

e. *Did the existence of Federal support enable you to do anything different than you would have done otherwise? Were the Graduate Fellowship trainees different from other participants in your program in background, age, completion rates, career choices and employment selection? Did you notice any significant differences among those aided and not aided?*

The influence of Federal support differed widely from one area of concentration to another in the program, but all were enhanced in a number of ways and were able to do things that would not otherwise have been possible. In some instances the benefits were in the nature of achieving stated objectives more rapidly and easily than could have occurred without Federal support. In other instances substantial upgrading of certain aspects of the program was made possible by such support.

Certainly, the support enabled us to attract many highly qualified students into the program who would not otherwise have been able to afford such training. Trainees did not differ significantly from other students in the program in age and background. They had higher average GRE scores and better GPA's than other students. The support funds enabled them to travel to meetings of learned societies and participate in presenting research reports, an opportunity not available to other students. The stipends permitted trainees to devote full time to their studies, thus enabling them to progress more rapidly than students forced to support themselves. The percentage of trainees completing the program

was higher than that of non-trainees, and a greater percentage accepted positions involving educational research afterward. A substantial number accepted university teaching and research positions. These latter are the ones we believe are most likely to make lifelong contributions to creative educational research. Research opportunities for those hired by school systems are often severely restricted even when personnel are ostensibly hired for that specific purpose.

The Foreign Language Education trainees differed less from other students in that area than was true in other areas of concentration. It was a new and struggling Center at the time the Educational Research Training Program began. In their goal to grow, they were probably less selective than the other areas in recruiting trainees. Nevertheless, Foreign Language Education benefitted significantly from the federal support in terms of upgrading of library and other training facilities. As a result, the program is a much stronger one now than it was before.

Trainees in all the programs benefitted from the grant in that they gained access to Computer-Assisted Instruction terminals for use in their research, and a number became highly skilled in this educational technology. Rental for such terminals from the CAI (Computer-Assisted Instruction) Laboratory was made possible through the institutional allocation accompanying the traineeships.

2. *Discuss the major strengths or unique features of the program, i.e., capability of staff, interest of students, interdisciplinary approaches, facilities, special exercises or field trips, practicum, new materials or curricula developed, or techniques used (e.g., films, programmed instruction, case studies, etc.) creation of research centers, and model training formats which could be replicated elsewhere.*

Much of the information requested here has been set forth in 1.a.b.c.d. and e. above, and virtually all of it in previous Progress Reports to USOE. The

very title of the project, "Multidisciplinary Educational Research Training Program," indicates a strong interdisciplinary emphasis from its beginning. As a result of its existence, faculty in widely disparate disciplines and departments learned to cooperate toward common goals to an extent not previously possible.

Faculty and staff in the program were of the highest calibre from the start. We were also fortunate to attract the involvement of additional established faculty and to bring in promising newcomers with fresh ideas as the program progressed. Because of the funding it was possible to provide program faculty opportunities for travel necessary to enhance their contributions to the program. Many trips to participate in meetings of learned societies, to observe other educational research training programs and exchange ideas with their faculties, to arrange research experiences for trainees in a variety of settings, etc., would not otherwise have been possible.

Our program resulted in the production of many curricular innovations. From its inception, the program was designed to initiate and implement significant innovations in the patterns of preparation of doctoral level educational research personnel in the areas of specialization encompassed. Prominent among our goals has been the tailoring of doctoral programs to fit individual needs, interests, and qualifications as well as national and regional needs. Significant progress in this direction has been made through the creation of innovative multidisciplinary programs in which traditional departmental lines have been minimized and students have taken courses and worked with faculty in many diverse disciplines. As a result we have developed a number of typical PhD programs which could be replicated elsewhere if comparable faculty and facilities are available. All of them are intended as models of sufficient flexibil-

ity to be useful in a variety of settings. Examples of such model programs are appended to this report (Appendices A,B,C,D).

As previously mentioned, extensive use was made of Computer-Assisted Instruction facilities in all areas of the program. Science and Mathematics Education trainees used curriculum materials developed in the various national curriculum studies, and in some instances, created new materials (films, etc.) which were used in various research studies.

A wide variety of opportunities for practical interdisciplinary research experiences was provided in many diverse settings. Such opportunities were available in the Departments of Educational Psychology, Curriculum and Instruction, Psychology, Mathematics, Chemistry, Physics, Geology, Spanish & Portugese, French & Italian, Linguistics, Germanic Languages, and Computer Sciences, among others. Other locations where arrangements were provided for practicum training experiences included The University of Texas Computer-Assisted Instruction Laboratory; The University of Texas Computation Center; Southwest Educational Development Laboratory, the USOE Regional Laboratory in Austin; the Educational Service Center, Region XIII; The Texas Education Agency; Huston-Tillotson College; The University of Texas at Austin Research and Development Center for Teacher Education; the Science Education Center; the Mathematics Education Center; the Earth Science Curriculum Project and the Biological Sciences Curriculum Study Project, both based at the University of Colorado; the Foreign Language Education Center; the Research and Development Center for College Instruction of Science and Mathematics; the University of Texas at Austin Measurement and Evaluation Center; The Psychometrics and Statistics Laboratory; the Center for Communication Research; and a number of public school systems in this geographical area.

3. *Review the major weaknesses or difficulties, e.g., trainee backgrounds, constraints imposed by the granting agency, recruiting of staff and/or trainees, administrative or interdepartmental relationships within your own administration or USOE.*

As mentioned earlier, we experienced some problems as a result of the multidisciplinary nature of the program. Of necessity trainees had to cope not only with the program staff and their requirements but with sometimes conflicting requirements and objectives under the jurisdiction of various departments and graduate studies committees. Communications among all these elements of the faculty sometimes left something to be desired. However, nothing insurmountable developed and it was well worth the trouble to maintain the interdisciplinary character of the training. As a result of our experience, it would be much easier next time. As for the local administration, support and cooperation could not possibly have been better. The same can be said for the USOE personnel with whom we had dealings.

No really serious constraints were imposed by the granting agency. Perhaps the transition from one grant period to the next could have been smoother if we had been allowed to carry forward institutional allocation funds from one fiscal year to the next as was permitted in EPDA programs. We were often pressed for time to turn in proposals and did not always have sufficient time to initiate the program once we knew whether or not it had been funded. Perhaps it would be possible for the reporting to be simplified to some extent.

Recruiting, especially of minority students, would have been facilitated had sufficient funds been available for travel necessary to make more extensive use of personal interviews in the process.

4. *Provide your overall evaluation of the program. Cite any objective evidence available to support your opinion. How did trainees themselves evaluate the program? What kinds of problems were encountered in placing trainees in jobs for which they were trained?*

We were well pleased with the results of the program and the progress that was made in implementing truly multidisciplinary research training. In particular it served not only to support students but also to support the faculty and programs within which the students were working. This kind of support enabled us to offer support services and to obtain materials for work in the program that we otherwise would not have been able to provide.

Feedback from the trainees indicated that with very few exceptions they were well pleased with the program and felt that it trained them for the job they entered after leaving the program. Evaluative statements from one trainee from each of the four areas of concentration within the program are attached as Appendix E. It should be noted that these evaluations deal specifically with the practicum and internship experiences in the program. Since these experiences constituted the heart of the program and set it apart from more routine programs, it seems fair to assume that such evaluations are indicative of general trainee reactions to the overall program.

With the exception of the area of Foreign Language Education no real problems were encountered in placing graduates in appropriate jobs. On the contrary, most trainees found several attractive openings available to them upon graduation. In isolated instances graduates were not willing to leave the immediate geographical area (usually because spouses were employed locally). Even these eventually found local jobs appropriate to their training, but some passed up positions elsewhere which would have been more lucrative and provided more opportunity for fuller exploitation of their unique research skills and greater potential for more significant contributions to the upgrading of

elementary and secondary education through their future research efforts. In the case of Foreign Language Education, some difficulty in placement was encountered toward the end of the program because of the shortage of openings for educational researchers in that area of concentration as a result of cutbacks in federal funding. To the best of my knowledge, none of these actually failed to find reasonably appropriate professional employment, but, like those who refused to move to other localities for one reason or another, they sometimes wound up in jobs that failed to exploit their full potential. Nevertheless, our overall success in placing trainee graduates was excellent.

5. *Describe your present plans in offering educational research and development training without Federal support, including future training directions and development of your program. What will be enrollment in the program 1974-1975?*

All four areas of concentration in educational research and development will continue to be offered. There is no question that all have been upgraded significantly as a result of past federal support. As a matter of fact, there is little doubt that enrollment will be maintained near present levels for the immediate future, barring unforeseen economic calamities. Enrollment for 1974-75 will not be significantly different from the previous fiscal year. There continue to be more applicants than our present facilities can accommodate, and our graduates continue to be in demand. Given the current ambiguous economic state of affairs, it is impossible to predict what the long-term future portends in this connection.

On the other hand, significant setbacks in the quality of the program have already been experienced as a result of reductions in federal support, and these are sure to be accentuated as such support ceases altogether. Present and future trainees will have to be drawn almost exclusively from the middle and upper classes since others will not have the financial resources to provide

their own support. Our efforts to bring in students from minority or economically deprived groups will be virtually wrecked. Those few from the latter groups whom we may be able to recruit are likely to have to devote so much time to outside work in order to support themselves that their course loads per semester would have to be seriously curtailed, resulting in unconscionable prolongation of their programs and probably crippling indebtedness upon completion.

Practicum and internship opportunities for trainees must be curtailed, not only because of our own lack of funding but because of similar cutbacks in federal funding for agencies where we would normally place our trainees for valuable research experiences. Faculty and trainees will be denied opportunities available in the past to enhance their potential through interchange of ideas afforded by participating in meetings of learned societies and observing other research programs. Faculty expansion is likely to be impossible, resulting in lack of infusion of new blood and maintenance of the status-quo as the highest objective we can hope to attain. Access to computer terminals for research analyses and for instructional purposes is likely to be seriously curtailed for lack of funds. Nothing could be more detrimental to the training of future educational researchers. No support is in sight for further development of the library resources and curricular materials made possible in the past by federal funding. In short, the quality and quantity of educational research trainees capable of contributing to elementary and secondary education are sure to deteriorate in the future as a direct result of the discontinuation of federal funding.

APPENDIX A

THE UNIVERSITY OF TEXAS AT AUSTIN—SCIENCE EDUCATION CENTER

SCIENCE AND MATHEMATICS EDUCATION

EDUCATIONAL RESEARCH TRAINING PROGRAM

THE CORE PROGRAM

A. Educational Foundations (9 semester hours)

Suggested courses:

(1)	Ed.P.380G	Principles of Human Development (Murphy)
(2)	Ed.P.380G.3	Psychology of Human Learning and Instruction (Murphy)
(3)	Ed.A.380G	Structure and Organization of Public Education (Rodgers)
(4)	C.F.E.380G	Cultural Foundations of Education (Foley)
(5)	C.F.E.392	Philosophical Foundations of Education (Rich)

COMPARABLE COURSES IN THE PSYCHOLOGICAL, PHILOSOPHICAL AND HISTORICAL OR SOCIAL ASPECTS OF EDUCATION MAY BE SUBSTITUTED WITH THE APPROVAL OF THE GRADUATE ADVISOR AND THE PROGRAM DIRECTOR (Dr. Reid)

B. Educational Research Methodology (15-18 semester hours)

Suggested courses:

(1)	Ed.P.362T	Tests and Measurements (Appel, Carse, Stanford)
(2)	Ed.P.371	Introduction to Statistics (Swanson, Judd)
(3)	Ed.P.380P	Psychometrics: Measurement and Evaluation (Liberty, Carse) Theory and Methods (Kelley) Individual Testing (Oakland)
(4)	Ed.P.382K	Multivariate Statistics: Correlation and Regression Methods (Fruchter) Factor Analysis (Fruchter) Experimental Design and Statistical Inference (Emmer)
(5)	Ed.P.384	Research Methodology: Fundamentals of Educational Research (Wicker) Introduction to Linear Statistical Models (Jennings) Computer Methods in Research (Veldman) Intermediate Topics in Linear Statistical Models (Jennings) Research Methods in Human Behavior (Jennings) Cross-cultural Research (Manaster)
(6)	Ed.P.395	Research (Graduate Faculty)
(7)	Psy.317	Statistical Methods in Psychology (Stolz, Kamil, Merryman)
(8)	Psy.384L	Advanced Statistics: Factor Analysis (Fruchter)
(9)	Psy.384M	Advanced Statistics: Inferential (Swanson)
(10)	Psy.384N	Advanced Statistics: Correlational (Swanson)
(11)	Psy.390	Research (Graduate Faculty)
(12)	Psy.391M	Theory and Construction of Tests (Swanson)
(13)	Psy.394	Seminar in Psychology (Graduate Faculty)

(14)	Ed.C.371.3	Seminar: Higher Education: Instructional Research Design and Analysis (Cain)
(15)	Ed.C.385G	Seminar: Curriculum Investigations
	.1.3	Contemporary Issues in Elementary School Science (Koran)
	.2.3	Contemporary Problems in Secondary School Science (Montague)
(16)	Ed.C.385G	Seminar: Program Development and Research
	.4.3	Analysis and Evaluation of Research in Science Education (Butts)
	.4.5	Empirical Methods in Instructional Research (Carry)
(17)	Ed.C.396.1.3)	Doctoral Seminar: Science Education--Review of Current
	.2.3)	Research in Science Education (Lee)
(18)	Ed.C.381M	Designs for Instruction (Martin, Reynolds)
(19)	Phl.363	Scientific Method (Causey)
(20)	M.362K & L	Probability I and II (Greenwood, Carry)
(21)	M.383C	Advanced Numerical Analysis (Cheney)
(22)	M.383D	Numerical Treatment of Differential Equations (Daniel)
(23)	Comp.Sc.381K	Computer Simulation of Psychological Processes (Loehlin)
(24)	Comp.Sc.310	Computer Organization and Programming (Pearson)

COMPARABLE COURSES IN EDUCATIONAL RESEARCH METHODOLOGY MAY BE SUBSTITUTED WITH THE APPROVAL OF THE GRADUATE ADVISOR AND THE PROGRAM DIRECTOR (Dr. Reid)

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APPENDIX B

The Foreign Language Education Center
The University of Texas at Austin

Suggested Course of Study
for the
Foreign Language Education Research Specialist

The following program is a suggested course of study for the preparation of research specialists in foreign language education.

The program is meant to give the candidate a thorough preparation in a first foreign language and a second foreign language. Specific language courses are not designated since each individual student will take different language courses according to his needs, interests and academic preparation.

Courses in Linguistics are also required of the student in order to acquaint him with the structure and function of language.

The third area in which courses are required are the courses that refer to the teaching and learning of language. These stress methods, techniques, materials, and the particular problems involved in foreign language learning, as well as psycholinguistics.

Finally, the student is given the tools which will help him in scientifically isolating, formulating, and researching problems in the teaching of language such as psychometric measurements, research design, etc.

The courses listed are simply suggestive. Substitutions may be allowed with the consent of the instructor and the graduate advisor.

The dissertation should be based on some problem relative to the teaching of foreign language and is usually very directly related to the internship in research which the candidate has pursued.

The course of study for the Ph.D. in foreign language education is somewhat more general. Suggested courses in this area may also be obtained.

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APPENDIX B (CONTINUED)

SUGGESTED COURSE OF STUDY
for the
PREPARATION OF RESEARCH SPECIALISTS
in
FOREIGN LANGUAGE EDUCATION

FIRST YEAR, FIRST SEMESTER: 12 hours

Ed.P. 371	Introduction to Statistics
CFE 380G	Cultural Foundations of Education
Language	
Ling. 372K	Phonological Analysis

FIRST YEAR, SECOND SEMESTER: 12 hours

Ed.P. 380P.1	Psychometrics: Measurement and Evaluation
Ling. 372L	Grammatical Analysis
Language	
Ed.C. 381M	Designs for Instruction

FIRST YEAR, SUMMER: 9 hours

Ed.P. 382L.4	Learning and Motivation: Computer Assisted Instruction
Ling. 387.4	Linguistics and Language Teaching
Language	

SECOND YEAR, FIRST SEMESTER: 12 hours

Ed.P. 384.1	Fundamentals of Educational Research
Spn. 364L	Applied Linguistics: Spanish
Language	
Ed.C. 385G	Seminar: Program Development and Research

WRITTEN AND ORAL QUALIFYING EXAMINATION

SECOND YEAR, SECOND SEMESTER: 12 hours

Ed.P. 382K.5	Multivariate Statistics: Survey of Multivariate Methods
Ed.C. 396.4.6	Doctoral Seminar
Language	
Ed.C. 397P.	Graduate Internship (Research)

SECOND YEAR, SUMMER: 9 hours

Ed.C. 385G.4.6	Seminar--All Level: Psycholinguistics
Language	
Language	

THIRD YEAR, FIRST SEMESTER: 12 hours

Ed.P. 384.3 Computer Methods in Research
Ed.C. 397P. Graduate Internship
Language
Ed.C. 699a. Dissertation

THIRD YEAR, SECOND SEMESTER: 12 hours

Ed.C. 397P. Graduate Internship
Ed.C.384P.2.6 Institute in Instruction-Secondary Schools: Media Utilization
Language
Ed.C. 699b. Dissertation

THIRD YEAR, SUMMER: 9 hours

Ed.C. 397P. Graduate Internship
Language
Ed.C. 699b. Dissertation

FINAL ORAL EXAMINATION

GRADUATION

APPENDIX C

THE UNIVERSITY OF TEXAS AT AUSTIN

EDUCATIONAL RESEARCH TRAINING PROGRAM

RESEARCH ON DEVELOPMENTAL-SOCIAL PSYCHOLOGY IN EDUCATION

This program is based primarily in Educational Psychology and Psychology with supporting work in appropriate fields of Education, Sociology, and Computer Sciences. In the practicum and internship experience of participants, particular emphasis is placed upon involving them in interdisciplinary projects insuring active, collaborative experience with a variety of scientific disciplines in their approach to problems in the areas of human learning and creativity, the dynamics of the teaching-learning process, preventive mental health, socio-cultural influences in learning and acculturation and the psycho-social world of school, home and community.

A typical program for a trainee in this area approximates the following schedule, but each trainee's program is tailored to his individual needs, objectives and qualifications and the temporal sequence of undertakings will vary. Of course, many trainees have to complete certain prerequisites before taking the "typical courses," and programs have to be modified accordingly. In this connection attention is invited to the "Core Program for Doctoral Students in Educational Psychology ", detailed in previous Progress Reports.

First Year

First Semester -- 12-15 hours

Ed. P. 382L.1 - Historical Perspectives, Theoretical Foundations and Methods
Ed. P. 382K.4 - Experimental Design and Statistical Inference
Ed. P. 385.1 - Individual Through the Life Cycle
* Ed. P. 395 - Research

Second Semester -- 12-15 hours

Ed. P. 382K.1 - Correlation and Regression Methods
Ed. P. 382L.2 - Psychology of Learning
Ed. P. 385.2 - Individual in Society
* Ed. P. 395 - Research

Summer Session -- 9 hours

Ed. P. 380P.2 - Psychometric Theory and Methods
Ed. P. 382L.3 - Human Motivation
Psy. 394K - Advanced Developmental Psychology

* This course extends over two or three semesters and is performed by each trainee under the supervision of a member or associate of the Graduate Faculty in Educational Psychology. The trainee is required to formulate a workable proposal for an experiment designed to investigate a significant educational problem which involves developmental-

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social psychology but cuts across other broad areas of educational psychology as well. The proposal is evaluated anonymously by three members, and the rating constitutes an important factor in the decision as to whether the trainee is advanced to candidacy for the Ph. D. This decision is usually made at the end of the second semester of work.

Second Year

First Semester -- 12-16 hours

Ed. P. 394K.6 - Internship in Research
Ed. P. 384.3 - Computer Methods in Research
Psy. 384L - Advanced Statistics: Factor Analysis
Psy. 394.15 - Research in Behavior Modification
Ed. P. 196 - Colloquium

Second Semester -- 12-16 hours

Psy. 391 - Advanced Personality Psychology
Ed. A. 380G - Structure and Organization of Public Education
Ed. P. 386N.2 - Personality Assessment: Analysis of Group Interaction
Ed. P. 394K.6 - Internship in Research
Ed. P. 196 - Colloquium

Summer Session -- 9-12 hours

Psy. 385M - Advanced Social Psychology
Ed. C. 381J - Curriculum Organization
C.F.E. 385 - Contemporary Society and Education

This is the usual point at which formal admission to Ph.D. candidacy is attained and a supervisory committee for the dissertation is appointed.

Third Year

First Semester -- 12-16 hours

C. S. 383 - Computer-Assisted Instruction
Soc. 395K - Seminar on Social Differentiation: Stratification and Ethnic Differences
C.F.E. 364 - Educational Systems and Patterns of Culture
Ed. P. 699a - Dissertation
Ed. P. 196 - Colloquium

Second Semester -- 12-16 hours

Soc. 387 - Seminar on Research Methods: Survey Design and Analys
Ed. P. 369K.1 - Psychology of Cultural Deprivation
Ed. P. 382.5 - Seminar on Personality and Mental Health
Ed. P. 699b - Dissertation
Ed. P. 196 - Colloquium

Summer Session -- 6 hours

Ed. P. 394K.6 - Internship in Research
Ed. P. 699b - Dissertation

Final Oral Examination and Defense of the Dissertation

Graduation

APPENDIX D

THE UNIVERSITY OF TEXAS AT AUSTIN

EDUCATIONAL RESEARCH TRAINING PROGRAM

RESEARCH METHODOLOGY AND EDUCATIONAL TECHNOLOGY

This program is based primarily in the Departments of Educational Psychology, Psychology, and Computer Sciences, with concentration of research efforts undertaken through the Computer-Assisted Instruction Laboratory, the University Computation Center, the Measurement and Evaluation Center, and the Psychometrics and Statistics Laboratory. Many problems of concern to educational researchers require special background in mathematics in order to utilize abailable quantitative research methodology and to develop new or modified analytic methods and models where existing ones are inadequate. Similarly, special knowledge and skills developed in the study of computer science such as the use of list-processing and other computer languages, simulation, gaming, and cybernetic processes are important to making progress in educational research and increasing its effectiveness. This type of background and training, coupled with comprehensive preparation in educational psychology with emphasis upon psychometrics and the psychology of learning, is ideally suited to a research concentration in the use of computers as a medium for presenting programmed instructional materials and investigating theoretical learning problems.

A typical program for a trainee in this area approximates the following schedule, but each trainee's program is tailored to his individual needs, objectives, and qualifications, and the temporal sequence of undertakings will vary. The program as outlined is based upon the assumption that the trainee will have previously completed introductory courses in statistics and in measurement. If this is not the case, it is necessary to rearrange individual schedules to provide for these deficiencies. In this connection attention is invited to the "Core Program for Doctoral Students in Educational Psychology.", detailed in previous Progress Reports.

First Year

First Semester -- 12-15 hours

Ed. P. 382K.1 - Correlation and Regression Methods
Ed. P. 382L.1 - Historical Perspectives, Theoretical Foundations and Methods
Ed. P. 385.1 - Individual Through the Life Cycle
* Ed. P. 395 - Research

Second Semester -- 12-15 hours

Ed. P. 382K.4 - Experimental Design and Statistical Inference
Ed. P. 382L.2 - Psychology of Learning
Ed. P. 385.2 - Individual in Society
* Ed. P. 395 - Research

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* This course extends over two or three semesters and is performed by each trainee under the supervision of a member or associate of the Graduate Faculty in Educational Psychology. The trainee is required to formulate a workable proposal for an experiment designed to investigate a significant educational problem which involves research methodology, educational technology, and learning but cuts across other broad areas of educational psychology as well. The proposal is evaluated anonymously by three members, and the rating constitutes an important factor in the decision as to whether the trainee is advanced to candidacy for the Ph.D. This decision is usually made at the end of the second semester of work.

Summer Session -- 9-12 hours

Ed. P. 380P.2 - Psychometric Theory and Methods
Ed. P. 382L.6 - Cognition and Behavior
Psy. 391 - Advanced Personality Psychology

Second Year

First Semester -- 12-16 hours

C. S. 355 - Digital Computer Programming
Ed. P. 382K.5 - Survey of Multivariate Methods
Ed. P. 384.2 - Research Methods in Human Behavior
Ed. P. 394K.6 - Internship in Research
Ed. P. 196 - Colloquium

Second Semester -- 12-16 hours

C. S. 383 - Computer-Assisted Instruction
Psy. 384L - Advanced Statistics: Factor Analysis
C.F.E. 380G - Cultural Foundations of Education
Ed. P. 394K.6 - Internship in Research
Ed. P. 196 - Colloquium

Summer Session -- 9-12 hours

C. S. 381 - Computer Simulation of Psychological Processes
Ed. C. 381J - Curriculum Organization
Ed. P. 382.4 - Seminar in Learning and Cognition

This is the usual point at which formal admission to Ph.D. candidacy is attained and a supervisory committee for the dissertation is appointed.

Third Year

First Semester -- 12-16 hours

Psy. 394.15 - Research in Behavior Modification
Psy. 386K - Learning Theory
Ed. A. 380G - Structure and Organization of Public Education
Ed. P. 196 - Colloquium
Ed. P. 699a - Dissertation

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Second Semester -- 12-16 hours

Psy. 394.2 - Current Issues in Ledrning
Psy. 394L - Seminar in Quantitative Methods
Ed. P. 382.10 - Seminar on Computer-Assisted Instruction
Ed. P. 196 - Colloquium
Ed. P. 699b - Dissertation

Summer Session -- 6-9 hours

Psy. 388K - Conference on Special Topics
Ed. P. 699b - Dissertation

Final Oral Examination

Graduation

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Appendex E

Individual Evaluations from Four Trainees

Kenneth W. Wunderlich: (Research in Science and Mathematics Education)

As a U.S.O.E. Educational Research Trainee, I have been involved in the analysis of data arising from research activities of students and faculty. This involvement has given me much greater insight into the difficulties one encounters in designing and interpreting results of educational research than my graduate courses alone could have provided.

During the first portion of this training, I was involved in an evaluation of the mathematics course for prospective elementary teachers. Analysis of the data included study of test item responses relative to an individual's overall score. Also, during this time I assisted in a research study to determine if there is change in a teacher's behavior when he teaches classes of different ability levels at the secondary level. This study introduced me to the advantages and disadvantages of the various observation systems (including the OScAR 5V) and the need for continued development of such systems.

During more recent portions of my internship, I have designed computer programs to compute non-parametric statistics. An important experience was the development of a program to compute the Kolmogorov-Smirno two-sample test to compare two cumulative frequency distributions. This was developed as an integral part of an experiment to study the influence of professional groups on prospective teachers. Another study, in which I became involved, included the use of linear regression models to detect the presence of aptitude-treatment interactions in the learning of a mathematical task.

Involvement in the research activities described above and work with Dr. L. Ray Carry, Assistant Professor of Mathematics Education, and other faculty who directed these efforts have given me an opportunity to synthesize better the needs for research in mathematics education and to develop my own research competence.

Karen Jean Reinertsen Lewis: (Research in Foreign Language Education)

My practicum experiences have been supervised by Dr. John Weinstock, Chairman of the Department of Germanic Languages, and Dr. John Bordie of the Foreign Language Education Center. It has involved research into the needs of advanced language students of Norwegian. During the first segment of this practicum, I have done preliminary research into the development of an audio-lingual program for advanced Norwegian students--investigating the need for and supply of texts, tapes, grammar books, etc., to establish such a program on the level of other modern foreign language programs, and assisting in the preparation of such materials. During future semesters, I plan to analyze the effectiveness of these experimental materials, arrive at an index of difficulty of materials presented, and conduct an item analysis of questions accompanying the reading materials. Reading materials have been a prime topic of investigation thus far; I plan to investigate the possibility of a new type of grammatical presentation in conjunction with my dissertation.

In addition to the above projects, I have conducted independent library research on the topic of audio-lingual drills and other related topics. I have also taken prescribed courses for Foreign Language Educational Research Trainees, including Psychometrics: Measurement and Evaluation (taught by Dr. Gordon Anderson, Chairman, Department of Educational Psychology), and Experimental Design and Statistical Inference (taught by Dr. E. Emmer), both of which should prove helpful in the evaluation of the Audio-lingual Norwegian sequence, and which will undoubtedly prove valuable in the testing done in connection with my dissertation.

As a direct result of practicum experience, I now have a publication in press: "Transformational-Generative Grammar: A New Consideration to Foreign Language Teaching", Modern Language Journal, January 1972.

Peter Jennings: (Research in Developmental-Social Psychology in Education)

My practicums for the past two semesters have been under the direction of Dr. Jere Brophy. In my first semester, I was involved in a portion of a larger project involving the assessment of teacher-pupil relationships in kindergarten and elementary school. I helped design and gather data concerning children's task persistance under experimental conditions of praise and competition. In my second semester with Dr. Brophy, I have been studying the development of social constructs in children, particularly children's inferences concerning the motives and attitudes of others. Several literature reviews and research proposals have been prepared and plans are being made for data collection in the near future.

As a result of my USOE traineeship research practicums I have improved my research skills in two general areas. First, I have improved my ability to conceptualize relevant research problems and, second, I have become increasingly sensitive to problems of research design, data collection, and analysis. I believe that the experiences I have had in my practicums will be quite valuable to me in my field of research.

Robert Costello: (Research Methodology and Educational Technology)

Recently my interests have been concerned with the relationship between cognitive abilities and human learning. Several studies have been conducted to examine the feasibility of an alternative methodological approach to the study of this area. These studies were explicitly designed to investigate the role of induction in solving concept learning problems. The results of these studies have suggested a methodology which may be useful in incorporation of individual differences in the study of human learning. The idea of utilizing individual differences in the study of human learning has been limited by the lack of significant theory pertaining to individual differences. Hopefully, the methodological approach examined in these studies will provide a theoretical structure in which cognitive abilities and human learning may be investigated. If the relationship between specific cognitive abilities and their role in human learning were established, then teaching techniques could be adapted to the ability requirements of the individual. This type of approach would also provide an important theoretical framework for the construction of computer-assisted instruction systems which would incorporate individual differences in their teaching programs.

This work has provided a basis for the work I will be doing for my dissertation. This will be an attempt to generalize and replicate the results of previous studies. My practicum experience has provided an opportunity for me to understand the relationship and importance of psychological research to the field of education. It has shown me the need and provided me the tools with which to understand and carry out research relevant to elementary and secondary learning problems.

NDEA Title IV-A Institute - Science/Mathematics

Name	Period of Support From - To	Field of Study	Degree and Year Acquired or Expected	Current Employment
Barker, Robert H.	1966-68	Science Educ.	PhD, 1969	Assoc. Professor of Science Educ. Director of Science Educ. Center Department of Elementary Education Eastern Kentucky University Richmond, Kentucky 40475
Bompart, Bill Earl	1966-67	Math Educ.	PhD, 1967	Assoc. Professor of Mathematics Augusta College Augusta, Georgia 30904
Castleberry, Samuel J.	1967-68	Science Educ.	PhD, 1970	Research Scientist, Educational Computer System for the Sciences Chemistry Bldg. 205W The University of Texas at Austin Austin, Texas 78712
Cleaver, Thomas J.	1966-68	Science Educ.	PhD, 1968	Assoc. Professor College of Education The University of Texas at San Antonio San Antonio, Texas
Fernandez, Norma	1968-70	Math Educ.	PhD, 1970	Assist. Professor of Education and Assoc. Director of TTT Program Department of Curriculum & Instruction The University of Texas at El Paso El Paso, Texas 78930
Kane, Ann C.	1968-69	Science Educ.	PhD, 1969	Assist. Professor Reading and Language Arts Center School of Education Syracuse University Syracuse, New York 13210
Lee, Ann Moore	1969-72	Science Educ.	PhD, 1973	Project Assist Evaluator Austin Independent School District Austin, Texas

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TRAINEE DATA - SCIENCE/MATHEMATICS (continued)

Name	Period of Support From - To	Field of Study	Degree and Year Acquired or Expected	Current Employment
Lovett, Carl James	1966-69	Math Educ.	PhD, 1969	Assist. Professor Mathematics Department Newark State College Newark, New Jersey
Mahler, David B.	1966-67	Science Educ.	PhD, resigned	Director, Curriculum Development The Greenbriar School Bastrop, Texas 78602
Marjama, Susan	1969-72	Science Educ.	PhD, 1974 expected	Research Assistant College of Education University of Illinois at Urbana Urbana, Illinois
Milkent, Marlene M.	1968-71	Science Educ.	PhD, 1971	Assist. Professor of Science Educ. University of Southern Mississippi Hattiesburg, Mississippi 39201
Webb, Leland	1968-71	Math Educ.	PhD, 1971	Assist. Professor California State College Bakersfield, California 93301
Wunderlich, Kenneth	1969-72	Math Educ.	PhD, 1972	Assist. Professor Division of Academic in Education The University of Texas at San Antonio San Antonio, Texas

TRAINEE DATA - FOREIGN LANGUAGE EDUCATION

Name	Period of Support From - To	Field of Study	Degree and Year Acquired or Expected	Current Employment
Abboud, Victorine	1969-70	FLE: Arabic	PhD, 1970	Computer Author & Instructional Designer Computer-Assisted Instruction Lab. The University of Texas at Austin Austin, Texas 78712
Baisch, Arthur	1970-73	FLE: German	PhD, 1974 expected	
Brewster, Elizabeth	1969-71	FLE: Spanish	PhD, 1971	Translation Consultant Campus Crusade for Christ San Bernardino, California
Cornejo, Ricardo	1966-69	Bilingual Educ.	PhD, 1970	Coordinator, Language Development and Reading Program Southwest Ed. Development Laboratory Austin, Texas
Holley, Freda	1968-71	FLE: German	PhD, 1971	Coordinator of Instructional Evaluation Austin Independent School District Austin, Texas
Huntsman, Beverly	1968-70	FLE	PhD (ABD) unknown	Assist. Professor Department of English Indiana University Bloomington, Indiana
Kirwin, Wilhelmine	1966-1969	Bilingual Educ.	PhD (ABD) unknown	Recovering from cancer
Lewis, Karen Reinertsen	1969-1972	FLE: Norwegian	PhD, 1972	Public Relations, Proposal Editor, and Psycholinguistics Researcher Hastings Regional Center Hastings, Nebraska
Ley, Mary Coates	1966-69	FLE: Spanish	PhD unknown	Unknown

TRAINEE DATA - FOREIGN LANGUAGE EDUCATION (continued)

Name	Period of Support From - To	Field of Study	Degree and Year Acquired or Expected	Current Employment
Morgan, Edgar Nolan	1966-69	FLEC: German & Russian	PhD, 1970	Coordinator of Evaluation San Antonio Independent School District Bilingual Program San Antonio, Texas
Payne, Ronald	1970-73	FLE: Research - Chinese	PhD, 1974 expected	Enrolled student at UT
Reeves, Barbara	1966-69	FLE: German	PhD, (ABD)	Assistant Professor Department of German Penn State University

TRAINEE DATA - EDUCATIONAL PSYCHOLOGY
(DEVELOPMENTAL SOCIAL/RESEARCH METHODOLOGY)

Name	Period of Support From-To	Field of Study	Degree and Year Acquired or Expected	Current Employment
Bethscheider, Janine K.	1968-71	Educ. Psychology Res./Methodology	PhD, leave of absence due to illness	
Cason, Gerald J.	1970-72	Educ. Psychology Res./Methodology	PhD, 1972	Assist. Professor Department of Educational Psychology The University of Texas at El Paso El Paso, Texas
Collier, Richard	1970-73	Educ. Psychology Res./Methodology	PhD, resigned from program, terminated studies with a Masters degree	Researcher and Evaluator Austin Independent School District Austin, Texas
Costello, Robert J.	1970-71	Educ. Psychology Res./Methodology	PhD, 1971	Consultant-Evaluator Dallas Independent School District Administrative Offices Dallas, Texas
Eanes III, Harvey R.	1966-67	Educ. Psychology Devel./Social	PhD, 1971	Director of Counseling St. Edward's University Austin, Texas
Gilbert, Lucia A.	1970-71	Educ. Psychology Devel./Social	PhD, 1974	Assist. Professor Psychology Department Iowa State University Ames, Iowa
Godfrey, Richard	1968-69	Educ. Psychology Res./Methodology	PhD, 1974 expected	Research Psychologist Personnel Research Lab Lackland Air Force Base San Antonio, Texas
Gray, William A.	1967-70	Educ. Psychology Devel./Social	PhD, 1970	Assist. Professor of Educational Psychology University of British Columbia Vancouver, British Columbia

TRAINEE DATA - EDUCATIONAL PSYCHOLOGY (continued)

Name	Period of Support From - To	Field of Study	Degree and Year Acquired or Expected	Current Employment
Groom, Vaughn	1968-69	Educ. Psychology Res./Methodology	PhD, resigned	Unknown
Hansen, Joe B.	1970-71	Educ. Psychology Res./Methodology	PhD, 1970	Evaluator Portland Public Schools Portland, Oregon
Harris, Teresa C. (Peck)	1970-72	Educ. Psychology Devel./Social	PhD, 1972	Assist. Professor College of Education University of Wisconsin at Parkside Kenosha, Wisconsin
Holden, William Joseph	1968-70	Educ. Psychology Devel./Social	PhD, 1972	Director of Psychology Research/Development School Rehabilitation Center Meeting Street Providence, Rhode Island 02908
Horowitz, Bernard	1966-68	Educ. Psychology Devel./Social	PhD, 1968	Chief, Social Science Division Commission on Obscenity & Pornography 1016 16th St. NW Room 500 Washington, D.C. 20036
Jacobs, Sylvia	1968-70	Educ. Psychology Devel./Social	PhD, 1970	Universidad Nacional Autonama de Mixico Cuidad Universitaria Mexico 20, D.F.
Jennings, Peter L.	1969-71	Educ. Psychology Devel./Social	PhD, 1971	Social Science Research Associate Early Childhood Education for Handicapped Children Program & Department of Special Education The University of Texas at Austin Austin, Texas 78712
Kleiber, Douglas Alfred	1969-72	Educ. Psychology Devel./Social	PhD, 1972	Project Director, Center for Improvement of Undergraduate Education Cornell University Ithaca, New York 14850

TRAINEE DATA - EDUCATIONAL PSYCHOLOGY (continued)

Name	Period of Support From - To	Field of Study	Degree and Year Acquired or Expected	Current Employment
Laosa, Luis M.	1970-71	Educ. Psychology Devel./Social	PhD, 1971	Assist. Professor College of Education University of California at Los Angeles Los Angeles, California 90024
Littrell, R. Fred	1966-67	Educ. Psychology Devel./Social	PhD, unknown	Computer Programming Manager Division of Management Information Systems State Board of Education Raleigh, North Carolina 27602
Lynch, James S.	1968-69	Educ. Psychology Devel./Social	PhD, resigned	Unknown
Merrill, Paul F.	1967-70	Educ. Psychology Res./Methodology	PhD, 1970	Assist. Professor Center for Computer Assisted Instruction Florida State University Tallahassee, Florida
Nagy, Thomas J.	1969-70	Educ. Psychology Res./Methodology	PhD, 1974	Senior Research Associate Oklahoma University Research Institute Norman, Oklahoma
Pentony, Carol Gentry	1966-63	Educ. Psychology Devel./Social	PhD, 1974	Assist. Professor of Psychology St. Thomas University Houston, Texas
Pratz, Owen R.	1966-68	Educ. Psychology Devel./Social	PhD, 1969	Assoc. Professor Department of Psychology Central Washington State College Ellensburg, Washington
Prochnow, Robert R.	1970-72	Educ. Psychology Res./Methodology	PhD, 1972	Assist. Professor Department of Educational Psychology College of Education St. Cloud State College St. Cloud, Minnesota

TRAINEE DATA - EDUCATIONAL PSYCHOLOGY (continued)

Name	Period of Support From - To	Field of Study	Degree and Year Acquired or Expected	Current Employment
Reeve, Mark B.	1966-69	Educ. Psychology Res./Methodology	PhD, unknown	Assist. Professor Department of Educational Psychology University of Cincinnati Cincinnati, Ohio
Sachs, Donald	1966-67	Educ. Psychology Devel./Social	PhD, resigned from prog.; transferred to UT Psychology Dept.	Unknown
Sanders, Nicholas M.	1966-67	Educ. Psychology Devel./Social	PhD, 1967	Assist. Professor of Educational Psychology Pennsylvania State University University Park, Pennsylvania 16802
Watters, Robert S.	1966-67	Educ. Psychology Res./Methodology	PhD, resigned	Unknown
Wells, Donald Gene	1967-69	Educ. Psychology Res./Methodology	PhD, 1970	Assist. Professor Department of Educational Psychology University of Tennessee at Martin Martin, Tennessee 38237
Whitlock, Joe Max	1969-70	Educ. Psychology Devel./Social	PhD, 1972	Staff Psychologist, District Office Texas Rehabilitation Commission Austin, Texas 78704
Winn, Lois Nelson	1967-68	Educ. Psychology Devel./Social	PhD, unknown	Unknown
Witzke, Judith (Albino)	1971-72	Educ. Psychology Res./Methodology & Devel./Social	PhD, 1973	Assist. Professor Department of Behavior Sciences SUNY at Buffalo Buffalo, New York